

Amendments to the Drawings:

The drawing sheets attached in connection with the above-identified application containing Figures 4-6 are being presented as sheets to be substituted for the previously submitted drawing sheets containing those figures. Figures 4-6 have been amended. Appended to this amendment is an annotated copy of the previous drawing sheets which have been marked to show changes presented in the replacement sheets of the drawing.

The specific changes which have been made to Figures 4-6 comprise the addition of a legend to indicate that those Figures are prior art.

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification, paragraphs have been amended on pages 11 and 15.

Claims 3 and 6 are requested to be cancelled.

Claim 1 is currently being amended.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1, 2, 4, 5, and 7 are now pending in this application.

U.S. Patent 5,200,157 to Toya

The PTO has cited U.S. Patent 5,200,157 to Toya but did not list the reference in the PTO-892 Notice of References Cited form. The Applicant requests that the PTO provide the reference on a PTO-892 in the next Office Action.

Drawings

The PTO has stated that Figures 3-6 should be designated as Prior Art. Although Figures 4-6 have been amended to include such a legend, the Applicant believes that Figure 3 may have been included in the objection as an oversight. Figure 3 does not show prior art but rather an aspect of the present invention; see page 8, lines 4-6 of the specification. Applicant requests reconsideration with regard to Figure 3.

Rejection of claims 1-7 under 35 USC 103 in view of Saeki

The PTO has rejected claims 1-7 as being unpatentable in view of Saeki. This rejection is traversed for the following reasons.

The PTO seems to suggest that Saeki teaches that the salients are being formed with a surface roughness of 0.1 to 1.5 microns. It is presumed that the PTO is referring to column 6, lines 28-31 of Saeki, which states “the surface of the resistive layer 3 is formed to have such surface roughness that the center line average height Ra falls within a range of 0.1 to 1.5.” However, the surface roughness that Saeki is teaching is the surface roughness of the whole surface of the resistive layer 3. In other words, this surface roughness is the surface roughness of irregularities or undulations formed on the whole surface of the resistive layer 3, and not the surface roughness of the “upper faces” of the salients, as defined in claim 1.

On the other hand, the surface roughness as defined in claim 1 of the present invention is a surface roughness of each salient and each depression. In other words, the upper faces of the salients have a certain surface roughness and the upper faces of the depressions have a certain surface roughness. Claim 1 of the present invention separately defines both the surface roughness of the upper faces of the salients and the upper faces of the depressions. Because the surface roughness of the salients and the depressions are separately defined, the surface roughness of claim 1 of the present invention is completely different from the surface roughness disclosed by Saeki. Thus, Saeki does not disclose or remotely suggest the surface roughness as defined by claim 1 of the present application.

The PTO also argues that the determination of surface roughness for the depressions would have been obvious to one with ordinary skill in the art through routine experimentation. As mentioned above, the surface roughness taught by Saeki is not the surface roughness as defined by claim 1 of the present invention. In addition, Saeki does not provide a teaching or motivation for one with ordinary skill in the art to use two different surface roughness values for the salients and the depressions. The Office Action does not point out where in the prior art there is any indication that the ratio of the surface roughness of the upper surfaces of the salients in comparison to the surface roughness of the depressions is a result-determinative variable for any property of the wafer treatment member. Finally, Saeki does not provide a teaching or motivation to go outside its specified range of 0.1-1.5 μm for the surface roughness of the depressions. Thus, there is absolutely no teaching in the prior art to suggest that any benefit would be derived from changing the topography of the surface layer from that disclosed in the reference.

Reconsideration and withdrawal of this rejection are respectfully requested.

Rejection of claims 1-7 under 35 USC 103 in view of Toya and Saeki

The PTO has rejected claims 1-7 as being unpatentable in view of Toya taken in light of Saeki. This rejection is traversed for the following reasons.

The PTO again seems to contend that Toya teaches that the salients are formed with a surface roughness of 12.5 microns. It is presumed that the PTO is referring to column 4, lines 25-27 of Toya, which states “[i]t is desirable for the surface of body 2, on which a wafer is disposed, to have a roughness of 12.5 μm in terms of Ra” However, the surface roughness that Toya is teaching is the surface roughness of the whole surface of body 2. In other words, this surface roughness is the surface roughness of irregularities or undulations formed on the whole surface of body 2, and not the upper faces of the salients.

As discussed above, the surface roughness as defined in claim 1 of the present invention is a surface roughness of each salient and each depression. Because the surface roughness of the salients and the depressions are separately defined, the surface roughness of claim 1 of the present invention is completely different from the surface roughness disclosed by Toya. Thus, Toya does not disclose the surface roughness as defined by claim 1 of the present invention, and certainly the PTO acknowledges that the surface roughness value disclosed by Toya is well outside of the claimed range for the salients.

To the extent that the rejection relies upon the teachings of Saeki to remedy the deficiencies of Toya, Applicant has already pointed out above why Saeki does not teach the structure defined by claim 1. Thus, any combination of Toya and Saeki (and no motivation has been established for making such a combination) could not lead to the claimed invention. The combination of Toya and Saeki provides nothing in addition to Saeki taken by itself, and therefore reconsideration and withdrawal of this rejection is requested for all of the reasons discussed above in connection with the rejection based on Saeki alone.

Rejection of claims 1-7 under 35 USC 103 in view of Walhauer

The PTO has rejected claims 1, 2, 4, 5, and 7 as being unpatentable in view of Waldhauer. This rejection is traversed for the following reasons.

The PTO contends that Waldhauer teaches salients formed with a surface roughness of 0.16-0.464 microns. It is presumed that the PTO is referring to paragraph 0042 of Waldhauer, which states “[i]f machined, the face portion may have a surface roughness on the order of about 4-16 microinches” However, the surface roughness that Waldhauer is teaching is the surface roughness of the whole surface of face portion. In other words, this surface roughness is the surface roughness of irregularities or undulations formed on the face portion. Thus, this rejection is similar to and suffers from the same deficiencies as the rejection based on Saeki. It should be reconsidered and withdrawn for the same reasons that have been set forth in detail above in connection with the rejection based on Saeki.

It is noted that the present invention makes it possible to avoid mechanical damage on the semiconductor wafer surface and to provide adequate cohesiveness onto the semiconductor wafer since the surface roughness of the salients is 0.05 to 1.3 μm . Also, the surfaces of the depressions are polished to the extent that the surface state of a film is maintained (page 5, line 28 to page 6, line 1 of the specification teaches “depressions formed with the silicon carbide (SiC) film...provide a coverage area between said salients”), so as to prevent microcracks from taking place on the upper faces of the salients. Finally, since the surface roughness of the depressions RA is 3 μm or more, it is possible to prevent the semiconductor wafer from warping. None of the cited references suggests the above-mentioned advantageous effects of the present invention or even discloses the technical problems that are addressed and solved by the present invention. These facts represent further evidence of the lack of a *prima facie* case of obviousness of the claimed invention. Furthermore, the present specification contains comparative data that demonstrate the relationship between the claimed parameters and the advantages obtained according to the invention.


Applicant believes that the present application is now in condition for allowance.
Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date September 14, 2005

By 

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5414
Facsimile: (202) 672-5399

Richard L. Schwaab
Attorney for Applicant
Registration No. 25,479



Fig.3

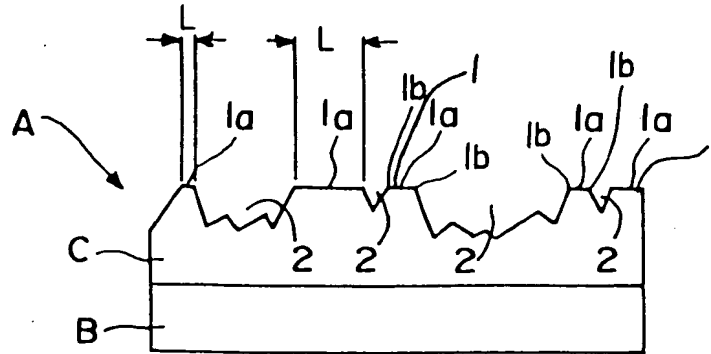
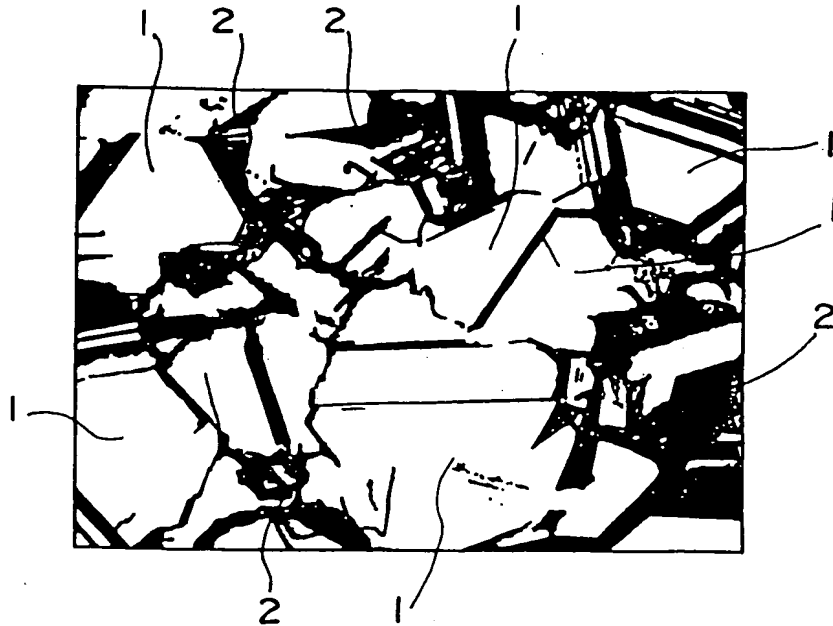
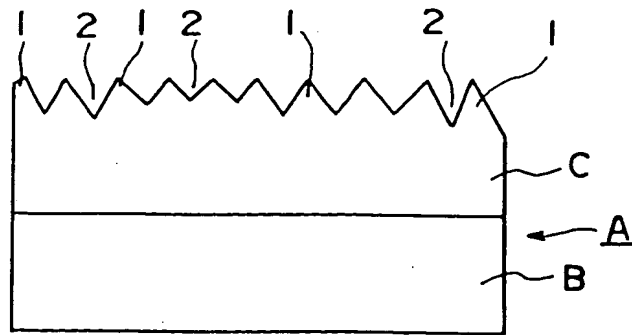


Fig.4



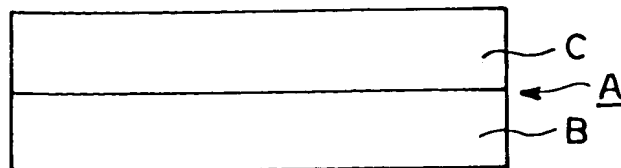
PRIOR ART

Fig.5



PRIOR ART

Fig.6



PRIOR ART